

C L A I M S

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2 1. Apparatus for aiding in the identification of tissue
3 type for an anomalous tissue in an impedance image
4 comprising:
5 means for providing a polychromatic immitance map of a
6 portion of the body;
7 means for determining a plurality of polychromatic
8 measures of an anomalous region of the immitance image; and
9 a display which displays an indication based on said
10 plurality of polychromatic measures.
- 11
12 2. Apparatus according to claim 1 including means for
13 providing a map of said polychromatic measures and wherein said
14 indication includes a display of a plurality of said maps.
- 15
16 3. Apparatus according to claim 2 wherein said display
17 includes an overlay of maps of said polychromatic measures.
- 18
19 4. Apparatus according to claim 3 and including means for
20 matching the values of the plurality of measures with
21 predetermined values of the measures to identify the tissue
22 type of the anomalous tissue.
- 23
24 5. Apparatus according to claim 4 wherein the values of the
25 measures are normalized values.
- 26
27 6. Apparatus according to claim 4 wherein the indication is
28 the display of a map of said determined tissue type.
- 29
30 7. Apparatus for determining a tissue type for an anomalous
31 tissue comprising:
32 means for determining a plurality of polychromatic
33 measures of the anomalous tissue; and
34 means for matching the values of the plurality of
35 measures with predetermined values of the measures to
36 identify the tissue type of the anomalous tissue.
- 37
38 8. Apparatus according to claim 7 wherein the values of the
39 measures are normalized values.

- 1
2 9. Apparatus according to claim 7 wherein one of the
3 polychromic measures is derived from the frequency at which
4 the capacitance spectrum of the anomaly crosses a capacitance
5 spectrum of typical nonanomalous regions.
6
7 10. Apparatus according to claim 7 wherein one of the
8 polychromic measures is derived from the integrated deviation
9 of the capacitance or conductance of the anomaly from that of
10 typical nonanomalous regions.
11
12 11. Apparatus according to claim 10 wherein one of the
13 polychromic measures is derived from the sum, over a
14 plurality of frequencies, of the positive deviations of the
15 capacitance of the anomaly from that of typical nonanomalous
16 regions.
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18 12. Apparatus according to claim 10 wherein one of the
19 polychromic measures is derived from the sum, over a
20 plurality of frequencies, of the negative deviations of the
21 capacitance of the anomaly from that of typical nonanomalous
22 regions.
23
24 13. Apparatus according to claim 10 wherein one of the
25 polychromic measures is derived from the sum, over a
26 plurality of frequencies, of the positive deviations of the
27 conductance of the anomaly from that of typical nonanomalous
28 regions.
29
30 14. Apparatus according to claim 7 wherein
31 one of the measures is the integral of the phase or the sum
32 of phase values over a range of frequencies.
33
34 15. Apparatus according to claim 7 wherein one of the
35 measures is the difference between the integral of the
36 difference between the phase at a point and the mean or
37 median value of the phase in the image, over a range of
38 frequencies.

1 16. Apparatus according to claim 7 wherein one of the
2 measures is the derivative of the capacitance curve or its
3 logarithm as a function of frequency, evaluated at a given
4 frequency.

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6 17. Apparatus according to claim 7 wherein one of the
7 measures is the derivative of the conductance curve or its
8 logarithm as a function of frequency, evaluated at a given
9 frequency.

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11 18. Apparatus according to claim 7 wherein one of the
12 measures is a frequency at which the phase of the impedance
13 reaches a specified value.

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15 19. Apparatus according to claim 16 wherein the specified
16 value is 45 degrees.

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18 20. A method of determining a tissue type for tissue in an
19 anomalous region in an immittance image, comprising:
20 determining a plurality of polychromatic measures of said
21 anomalous region; and
22 matching the values of the plurality of measures with
23 predetermined values to identify the tissue type of the
24 anomalous region.

25
26 21. A method of determining a tissue type for an anomalous
27 tissue:
28 determining a plurality of polychromatic measures of the
29 anomalous tissue;
30 matching the values of the plurality of measures with
31 predetermined values to identify the tissue type of the
32 anomalous tissue.

33
34 22. A method according to claim 21 wherein one of the
35 polychromatic measures is derived from the frequency at which
36 the capacitance spectrum of the anomaly crosses a capacitance
37 spectrum of typical nonanomalous regions.

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39 23. A method according to any of claim 21 wherein one of the

1 polychromic measures is derived from the integrated deviation
2 of the capacitance or conductance of the anomaly from that of
3 typical nonanomalous regions.

4
5 24. A method according to claim 23 wherein one of the
6 polychromic measures is derived from the sum, over a
7 plurality of frequencies, of the positive deviations of the
8 capacitance of the anomaly from that of typical nonanomalous
9 regions.

10
11 25. A method according to claim 23 wherein one of the
12 polychromic measures is derived from the sum, over a
13 plurality of frequencies, of the negative deviations of the
14 capacitance of the anomaly from that of typical nonanomalous
15 regions.

16
17 26. A method according to claim 23 wherein one of the
18 polychromic measures is derived from the sum, over a
19 plurality of frequencies, of the positive deviations of the
20 conductance of the anomaly from that of typical nonanomalous
21 regions.

22
23 27. A method according to claim 21 wherein one of the
24 measures is the integral of the phase or the sum of phase
25 values over a range of frequencies.

26
27 28. A method according to claim 21 wherein one of the
28 measures is the difference between the integral of the
29 difference between the phase at a point and the mean or
30 median value of the phase in the image, over a range of
31 frequencies.

32
33 29. A method according to claim 21 wherein one of the
34 measures is the derivative of the capacitance curve or its
35 logarithm as a function of frequency, evaluated at a given
36 frequency.

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38 30. A method according to claim 21 wherein one of the
39 measures is the derivative of the conductance curve or its

1 logarithm as a function of frequency, evaluated at a given
2 frequency.

3

4 31. A method according to claim 21 wherein one of the
5 measures is a frequency at which the phase of the impedance
6 reaches a specified value.

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8 32. A method according to claim 31 wherein the specified
9 value is 45 degrees.

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11 33. A method according to claim 21 wherein the values of the
12 measures are normalized values.

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